GREAT WESTERN CORRIDOR FEASIBILITY STUDY

EXECUTIVE SUMMARY

MARCH 2010

Prepared For:

Yavapai County Public Works

In Cooperation With:

Arizona Department of Transportation

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Introduction

The *Central Yavapai County Transportation Study*, dated October 1995, identified Central Yavapai County as one of the fastest growing areas in the state. The study was conducted by Yavapai County in conjunction with Chino Valley, Prescott, Prescott Valley, Yavapai-Prescott Tribe, the Northern Arizona Council of Governments (NACOG), and ADOT. The 1995 transportation study was followed by the *Central Yavapai County Transportation Study Update*, dated December 1998. This study was prepared in conjunction with Yavapai County, Prescott, Prescott Valley, Chino Valley, and Yavapai-Prescott Tribe. In both studies, the Glassford Hill Road Extension was identified as a new regional four-lane "new or improved limited/controlled access road" that begins at the SR 89A/Glassford Hill Road intersection and continues north to the Road 5 South alignment, where it transitions to an east-west facility and terminates at SR 89. The study defined controlled access as high speed roadways with restricted access from properties and grade-separated interchanges.

The 2006 CYMPO study recommended a future roadway network comprised of local and regional roads to meet the 2030 travel demands, which included "Glassford Hill Road Extension from State Route 89A to Outer Loop Road or other alignment to be determined." Based on future traffic projections, an ultimate six-lane facility was recommended. In addition, the study states that "the Glassford Hill Road Extension from SR 89A to SR 89 to Williamson Valley Road provides the opportunity for a controlled access facility to offer some relief to SR 89 in the area" and therefore the plan reiterates that the roadway will be an access controlled facility.

The existing major highways in the study area include SR 69, SR 89, and SR 89A. Statewide and interstate travel to and from the area is served by I-17, which is roughly 32 miles east of the study area. These routes connect Central Yavapai County to the rest of Arizona, and the state highways serve as main thoroughfares for the local communities. The regional state routes are currently congested causing significant travel delays.

The City of Prescott recently completed the *Airport Area Transportation Plan*, which evaluated a large study area surrounding the Prescott Airport that includes the recommended Glassford Hill Extension roadway corridor. Updated traffic volume projections were developed based on potential build-out scenarios within the study area. That study identified the future "No-Build" conditions if a new controlled access freeway is not implemented in this area. The results of that analysis show that SR 89A and SR 89 will operate at level of service (LOS) E or F and the majority of the section line arterials within the study area will operate at LOS F.

These studies have all identified a need for a new access controlled facility based on projected future travel demands. In order to evaluate all potential locations on SR 89A for the beginning of the new access controlled facility, the study area for this Feasibility Study has been broadened to also include what is referred to as the Great Western Road intersection with SR 89A (Old Hwy 89A). The study area is presented in **Figure E-1**. This study evaluates the Great Western Corridor and develops alternative alignments, traffic interchange locations and configurations, typical roadway cross sections, and ultimate right of way needs. The alternatives evaluation process includes an assessment of environmental, engineering, and property access criteria in order to develop a preferred corridor alignment.

Many agency and private stakeholders were involved with the alternatives development and evaluation of the Great Western Corridor, including Yavapai County, Arizona Department of Transportation (ADOT), Federal Highway Administration (FHWA), Town of Prescott Valley, Town of Chino Valley, City of Prescott, Central Yavapai Metropolitan Planning Organization (CYMPO), US Fish & Wildlife Services (USFWS), Arizona Game & Fish Department (AGFD), Granite Dells Ranch Holdings, LLC, Arizona State Land Department (ASLD), Deep Well Ranch, Cortez Enterprises, and Granite Dells Estates Properties, Inc.

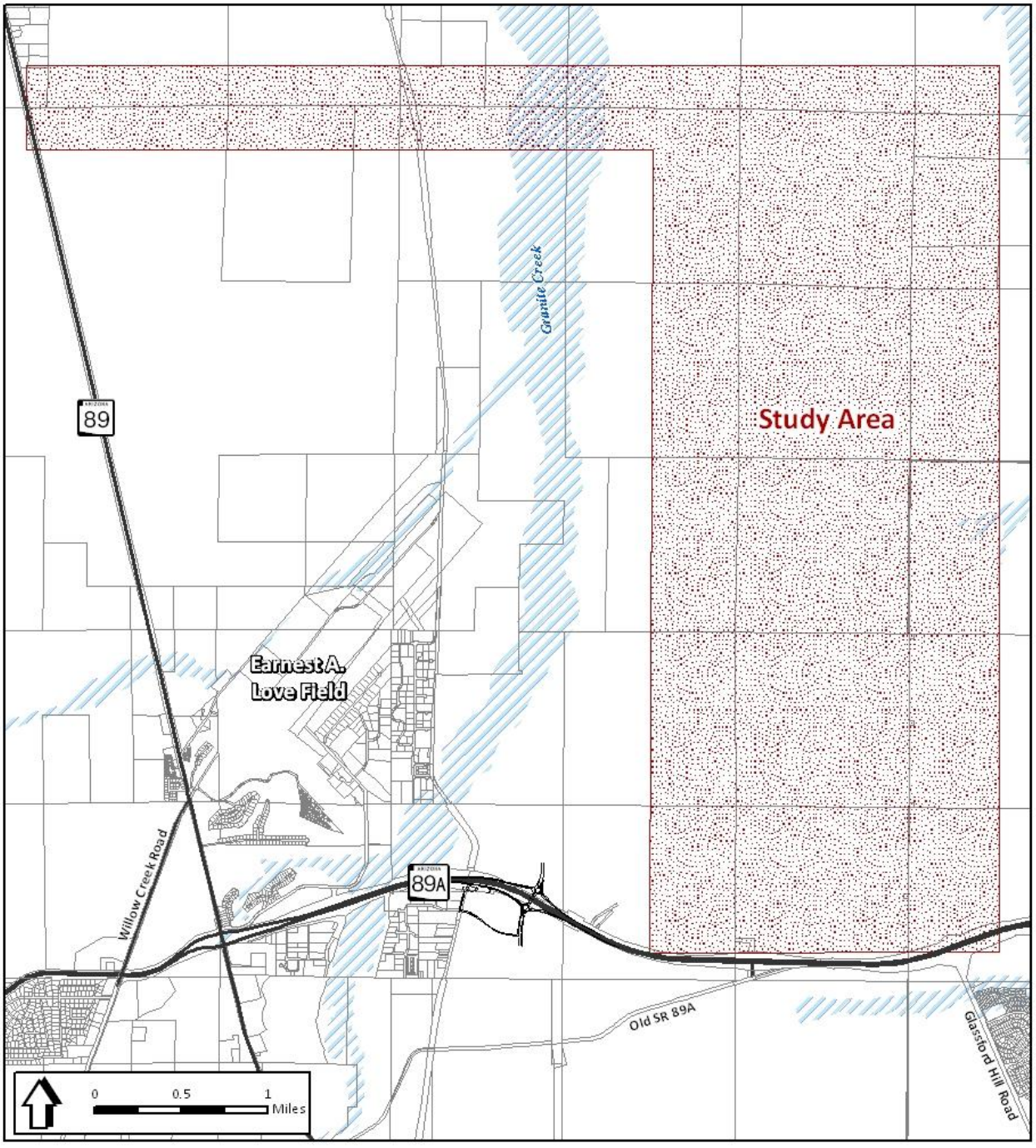


Figure E-1. Study Area

Existing Conditions

SR 89 in the study area is a two-lane undivided urban highway that runs north-south with a posted speed limit of 50 miles per hour (mph) near Prescott and a speed limit of 65 mph near Chino Valley. SR 89 is the main connector roadway between Prescott and communities to the north.

SR 89A is a four-lane divided urban freeway that runs east-west near the study area with a posted speed limit of 65 mph. SR 89A is the main connector roadway between Prescott and Prescott Valley. The typical cross-section of SR 89A consists of two 12-foot travel lanes with a four-foot inside shoulder and a ten-foot outside shoulder in each direction, separated by a 46-foot-wide center median (measured from the inside edge of each travel lane). SR 89A is currently in the implementation process to become a fully access controlled facility. Due to funding limitations, the access controlled traffic interchanges along the route are being implemented in phases.

The land within the project study area is predominantly undeveloped grasslands and the principal land use is agriculture or grazing. Property ownership is a checkerboard pattern of alternating sections of private and State Trust Land. **Figure E-2** presents the existing land owners within the study area and surrounding vicinity. The major land owners within and near the study area include Arizona State Land Department (ASLD), Granite Dells Ranch, Granite Dells Estates, Cortez Enterprises, Deep Well Ranch, and the City of Prescott which owns Ernest A. Love Field.

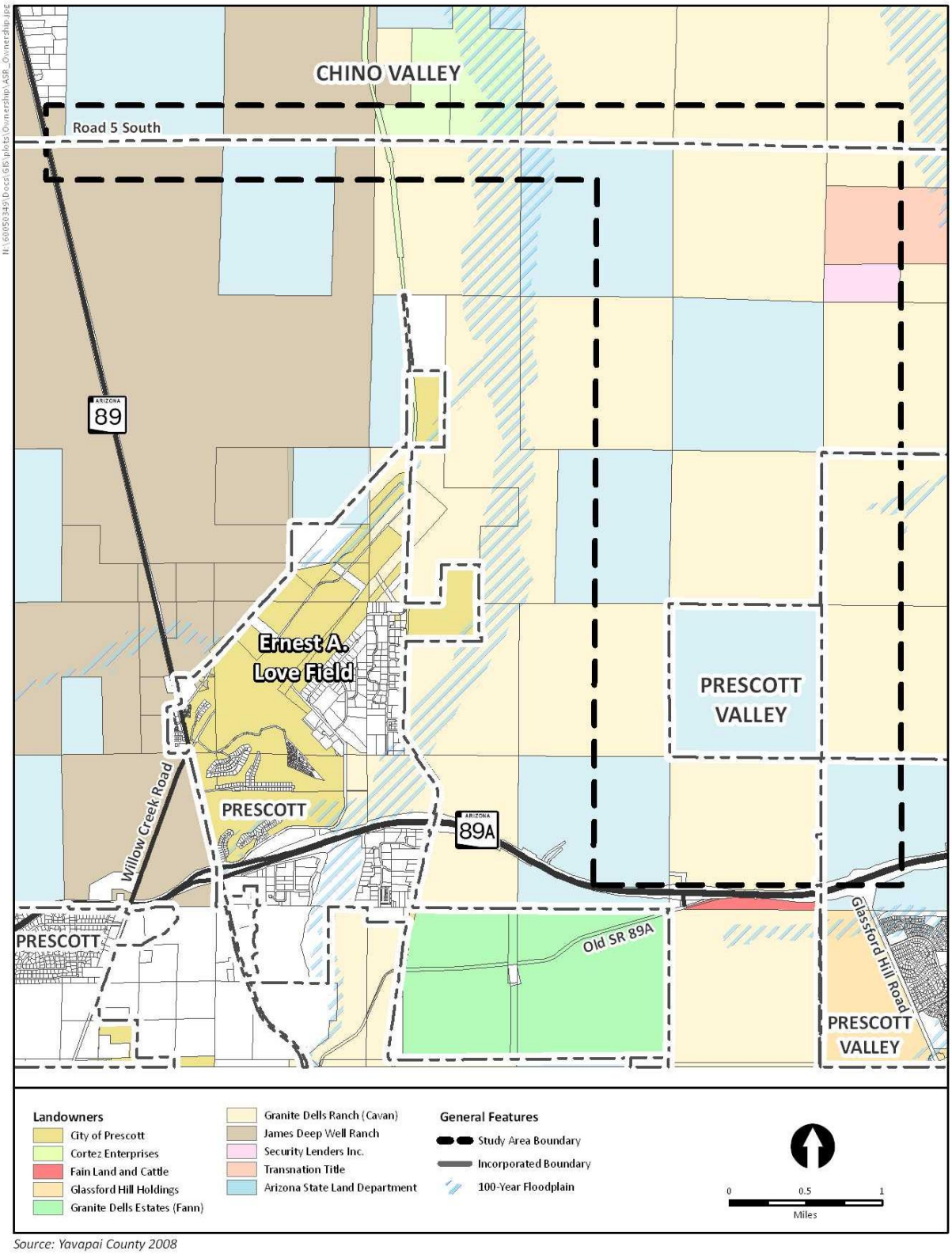
The majority of the project study area falls within the unincorporated areas of Yavapai County with some parcels in the town limits of Prescott Valley and/or Chino Valley. The majority of the land within the study area is zoned single family residential.

Eleven existing drainage ways have been identified and located within the Great Western study area. The north-south study corridor includes seven minor drainage ways. The areas of these watersheds range between 85 acres to 895 acres.

Existing utilities within the study area include APS overhead power transmission lines, APS underground power distribution lines, Qwest underground telephone lines, Cable One underground fiber optic lines, Unisource underground gas lines, and Prescott Valley water lines.

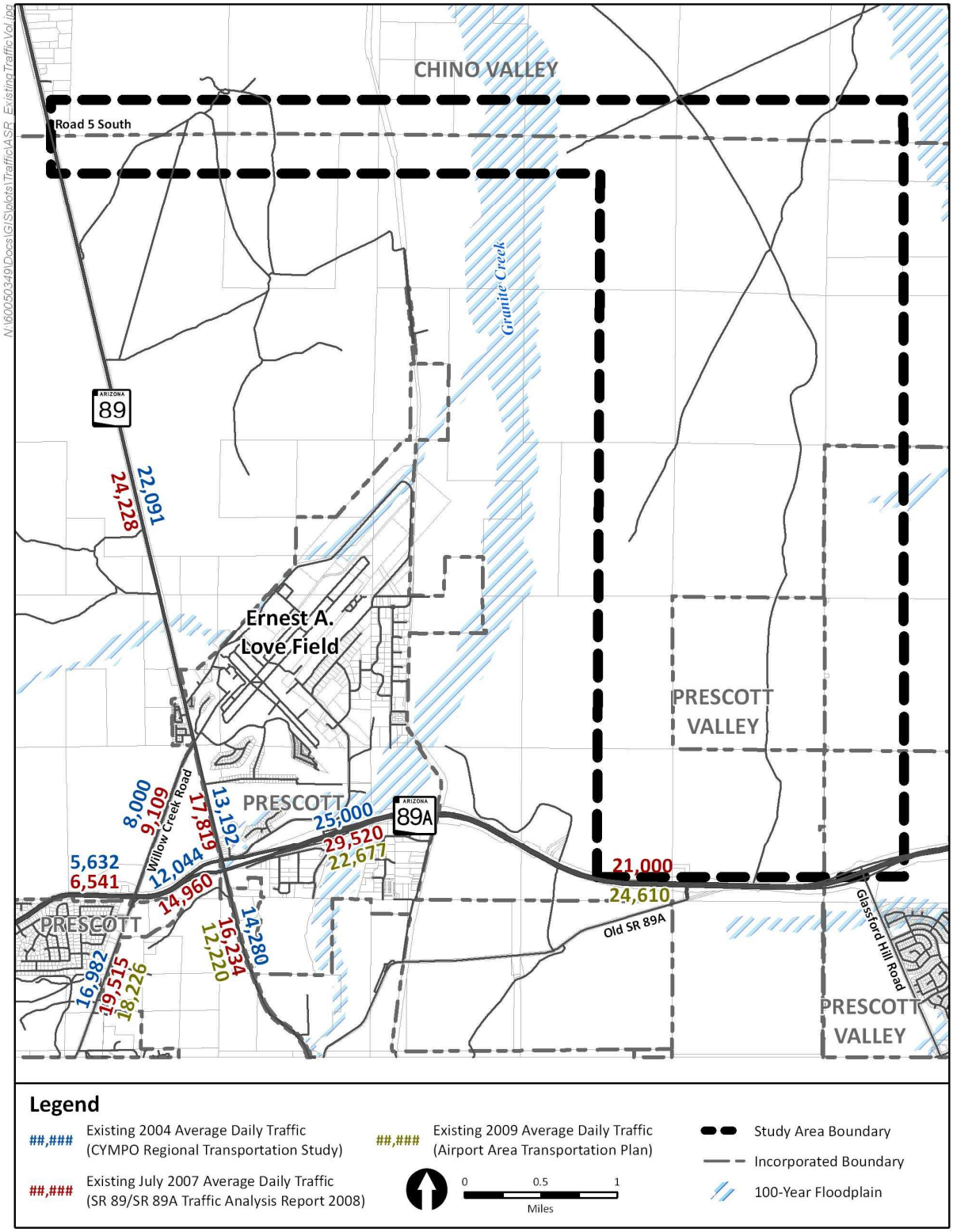
Three recent studies have collected existing traffic volumes in and near the project study area, which range from year 2004 to year 2009. These studies include the *CYMPO Regional Transportation Study* dated 2006, the *"Triangle Area" Traffic Analysis Report* dated August 2008, and the *City of Prescott Airport Area Transportation Plan* dated June 2009. The existing volumes from each of these reports were obtained in 2004, 2007, and 2008/2009 and are presented in **Figure E-3**.

There are no existing established pathways or trails within the extents of the study area. There is an existing railroad corridor right of way owned by Cortez Enterprises that crosses the east-west segment of the study area. The corridor no longer has rail, and it appears to be used as an unofficial pathway/trail that extends from the Prescott airport north to Chino Valley.



Source: Yavapai County 2008

Figure E-2. Existing Land Ownership



Source: CYMPO Regional Transportation Study 2006 (2004 Volumes); SR 89/SR 89A Traffic Analysis Report 2008 (2007 Volumes); Yavapai County 2008

Figure E-3. Existing Traffic Volumes

Future Conditions

Within the project study area, the majority of the land is zoned for development. Land within the Town of Prescott Valley has been designated for Planned Area Development (PAD). PAD's provide for various types and combinations of land uses such as commercial and employment centers, single and multi-family housing, industrial complexes and public spaces. The majority of the unincorporated area within the project study area has been designated for low- to medium-density residential, with some areas identified as very low-density residential. The jurisdictions have also identified areas of future mixed use and commercial use.

APS plans to replace the existing temporary Glassford Hill power substation north of SR 89A with a new permanent power substation. The new substation is planned to be located approximately at the northwest corner of Section 27, Township 15 North, Range 1 West. APS has future plans to construct a new 69kv overhead transmission line corridor which would run north-south from the new substation. The future 69kv corridor would begin at the existing 69kv lines located south of SR 89A and run north, through the new substation, and end at the existing 69kv lines located in Township 16 North, Range 1 West.

The Town of Prescott Valley has indicated that they plan to construct a new 24 to 30-inch water pipeline between the Town's existing tank farm located south of SR 89A near Great Western Road and the Prescott production facility located in Chino Valley. The exact location of the new pipeline is yet to be determined with possible alternative alignments along the north-south section lines at Great Western Road or Glassford Hill Road. There are no other known utilities planned in the near future within the study area.

The City of Prescott's *Airport Master Plan Update*, which is currently in progress, will assess the future growth in the region and forecast the future needs of the Ernest A. Love Field (PRC) airport. The Master Plan Update will provide recommendations regarding future airport services to stimulate new traffic and economic growth for the airport. A new terminal location and proposed circulation plan will be developed.

The consultant team preparing the Master Plan Update provided preliminary information for use in this study. An update for the Airport Part 77 surface is not yet available; however, conservative estimations for approach elevations can be made utilizing the most conservative proposed runway extension plans. The current runway alternatives vary the roadway extension length, with the longest extension approximately 4,000 feet. Utilizing the approach surface elevation rates in the current Part 77 surface and an assumed runway extension of 4,000 feet, conservative approach elevations were determined for alternatives analysis purposes. None of the alternatives are anticipated to encroach on the updated Part 77 surface.

There are no future trails or pathways planned within the extents of the study area. There is an existing railroad right-of-way corridor owned by Cortez Enterprises which crosses the east-west segment of the study area. The corridor no longer has rail, but has the potential to become integrated into the City of Prescott's Rails to Trails program. South of the Prescott Airport, the railroad corridor is an established trail called the Peavine Trail which could extend north in the future.

Year 2030 Traffic Volumes

The *CYMPO Regional Transportation Study,* dated 2006, and the *City of Prescott Airport Area Transportation Plan,* dated June 2009, both included year 2030 model runs that incorporate the project study area. The *City of Prescott Airport Area Transportation Plan* (AATP) took the 2006 CYMPO travel demand model for year 2030 and included proposed roadway networks and land uses based on recent studies and proposed developments in and near the Great Western study area. The year 2030 model was further refined for the area and multiple alternative models were

evaluated to develop a roadway network that would meet the 2030 travel needs of the tri-city area.

Included in the multiple alternatives was a "no freeway" model run, referred to as Alternative 2 in the AATP report. This model modified the base roadway network to reflect Great Western/Road 5 South, Glassford Hill Road, and Granite Dells Parkway as all 4-lane arterial roadways, and therefore no new access controlled facility was included. For the purposes of this study, the AATP Alternative 2 model was considered the "No-Build" Great Western study model. **Figure E-4** presents the year 2030 daily traffic volumes within the study area from the AATP Alternative 2 roadway network model.

The AATP included a recommended roadway network that would meet the year 2030 needs of the area. **Figure E-5** presents the year 2030 daily traffic volumes from the recommended AATP roadway network model within the study area. The AATP model includes Great Western Road as a high capacity/high speed corridor.

Neither the AATP year 2030 model nor the CYMPO model includes the future Chino Valley Extension north of the Great Western Corridor. The regional trips utilizing the Great Western Corridor in the north-south direction are anticipated to increase from the current projections with the completion of the Chino Valley Extension beyond year 2030. Since the year 2030 travel demand models do not include the Chino Valley Extension, it is very difficult to predict the year 2030 traffic volumes along the Great Western with the full future roadway system in place. Therefore, this study will establish the need for an access controlled facility by evaluating the anticipated Build year 2030 volumes currently available and providing recommendations for the preferred corridor alignment.

Year 2030 Traffic Operational Characteristics

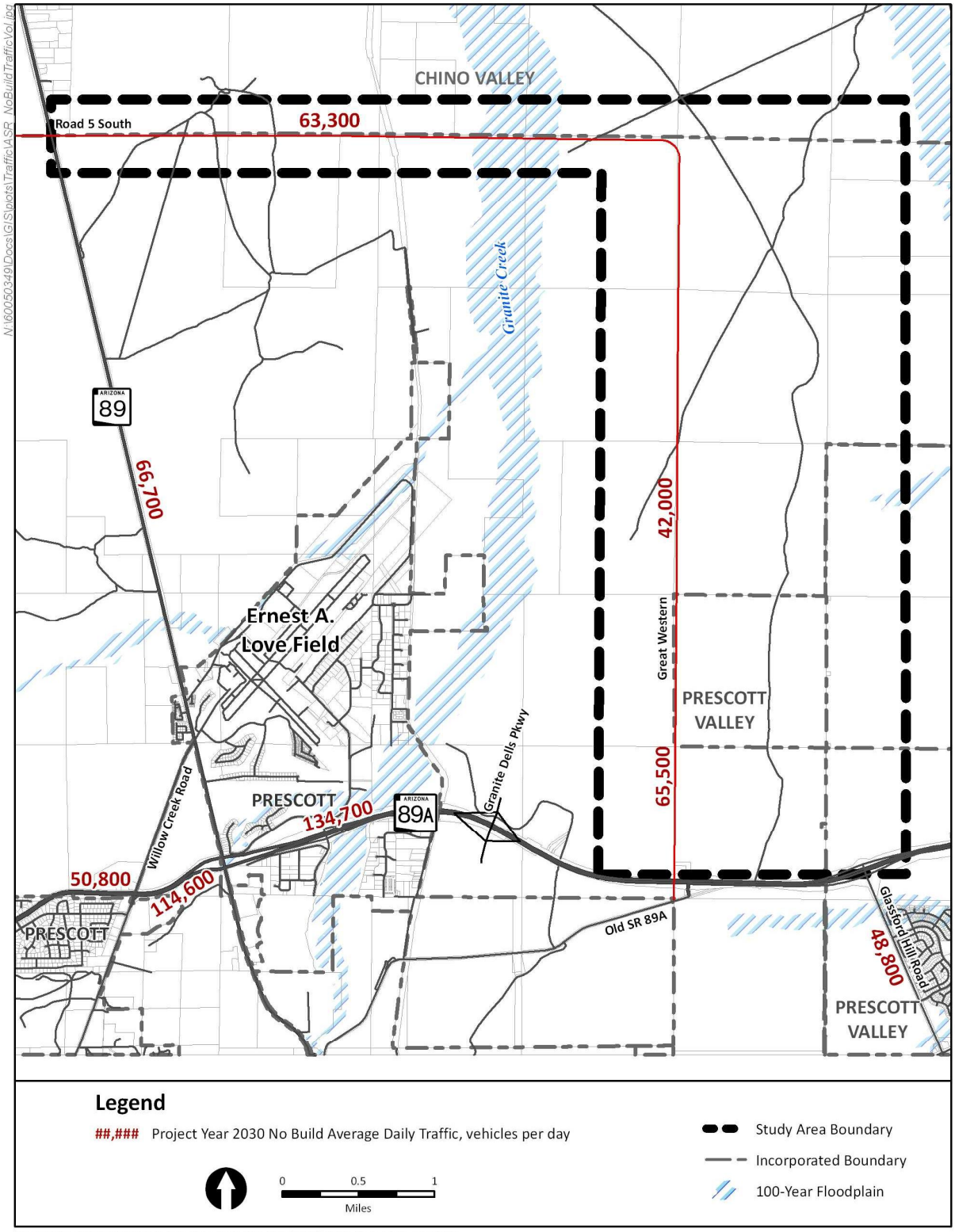
Operational traffic conditions are defined based on level of service (LOS) per the Highway Capacity Manual (HCM) with letter designations from 'A' to 'F' with LOS 'A' representing the best operational conditions and LOS 'F' representing an over-capacity condition (congestion). Traffic operational analyses for SR 89A and SR 89 were conducted using CORSIM. The anticipated operations for year 2030 No-Build conditions include the following:

- In the AM Peak hour, SR 89 will operate at LOS 'F' in the southbound direction north of Road 5 South to south of Willow Creek Road, then transitions to LOS 'E' to the SR 89A traffic interchange.

- Northbound SR 89 from the SR 89A TI to north of Road 5 South will operate at LOS 'F' in the PM peak hour.

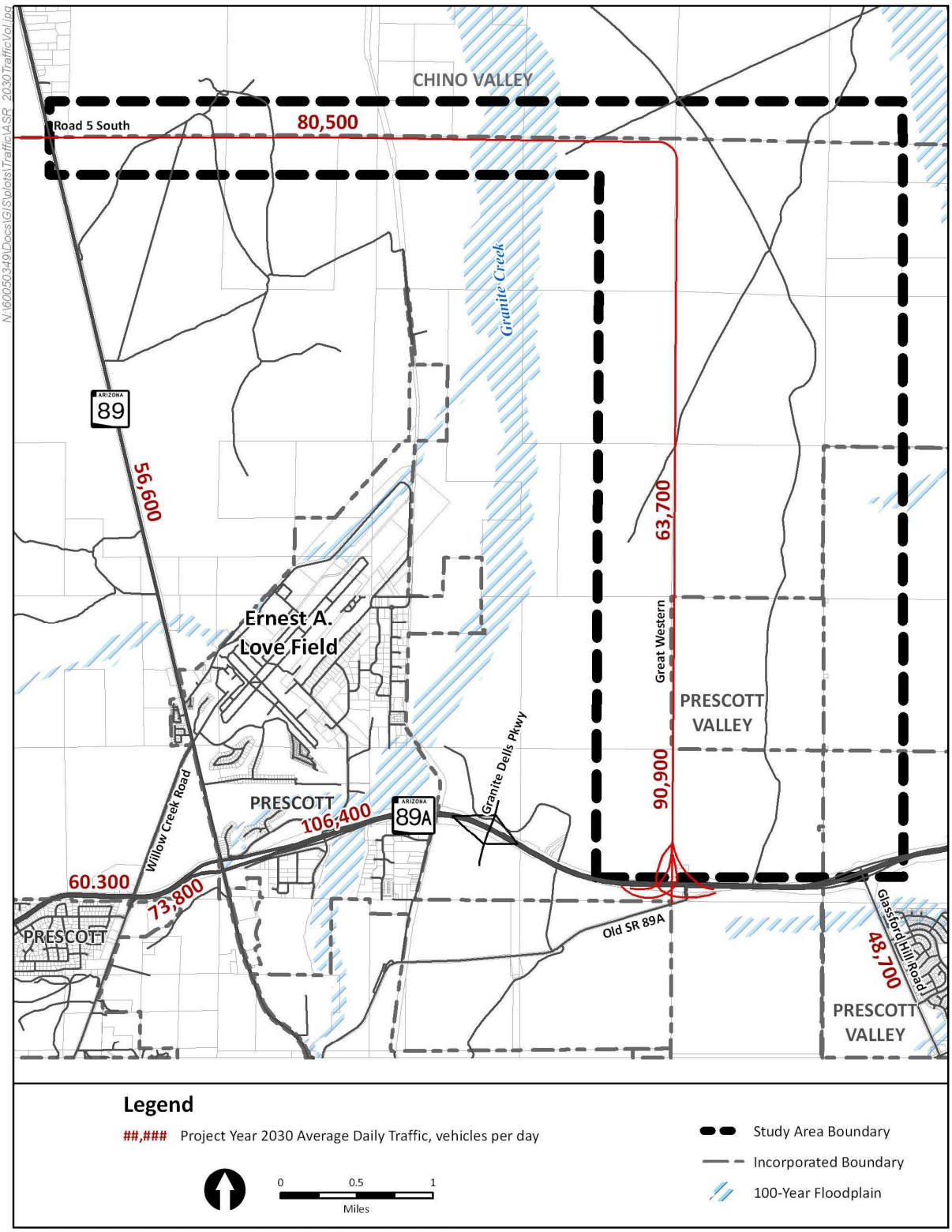
- SR 89A mainline will experience LOS 'F' in the westbound direction in the AM peak hour and LOS 'F' in the eastbound direction in the PM peak hour. Some of the anticipated congestion will be caused by weaving maneuvers between closely spaced service interchanges and the high volumes anticipated on SR 89A.

All intersections that were included in the analyses are anticipated to operate at LOS 'E' or 'F' in both peak hours with the exception of the SR89/SR89A TI southern intersection in the AM peak hour, which operates at LOS 'D'.



Source: City of Prescott Airport Area Transportation Plan (AATP) 2009; Yavapai County 2008

Figure E-4. Year 2030 No-Build Traffic Volumes



Source: City of Prescott Airport Area Transportation Plan (AATP) 2009; Yavapai County 2008

Figure E-5. Year 2030 Traffic Volumes

Environmental Setting and Context

Title VI/Environmental Justice: Demographic data obtained from the 2000 U.S. Census were used to compare the demographic profile of the study area with that of Yavapai County and the State of Arizona. Census block group level data were used to identify disabled, gender, income, age, and minority populations. The evaluation of the study area block groups indicates that census tract 5, block group 1, just south of the study area, has a high percentage of elderly persons; however aerial imagery reveals that the portion of that block group closest to the study area is undeveloped. No other protected populations were identified. While disproportionate impacts to protected populations are not anticipated, the Great Western corridor alignment could impact isolated populations within a census block group.

Cultural Resources: A Class I cultural resources overview of the study area was undertaken to determine if a Class III field survey would be indicated. The Class I overview identified 15 surveys in conjunction with previous investigations that were either within or partially within the study corridor. The surveys cumulatively cover approximately five percent of the study area, therefore, a Class III field survey would be required before construction for the remaining unsurveyed portions of the Preferred Alternative. Five cultural resource sites were identified within the study area. Four of the five sites are linear features and one is a multi-component site.

Vegetation: The study area is located in the Lonesome Valley on primarily undeveloped land within Yavapai County. Vegetation within the project area is primarily grasslands. The area is interspersed by chapparal with scattered woody perennial shrubs.

Native Plants: Arizona phlox (Phlox amabilis), a US Forest Service sensitive species, has been reported to occur within three miles of the study area. The AGFD distribution map shows that the plant has been observed in three different locations along SR 89 and SR 89A near Prescott and Prescott Valley. This plant may be present within the study area. No other native plants with special status have been reported.

Special Status Species: Four special status species have been documented as occurring within three miles of the study area. One of the species, Arizona phlox, is discussed in the Native Plants section above. The other special status species are discussed below; all are protected under the Migratory Bird Treaty Act. No proposed or designated critical habitat is present within three miles of the study area.

Threatened and Endangered Species: Wintering bald eagles (Haliaeetus leucocephalus) have been reported within three miles of the study area. The “wintering population” of bald eagles in Arizona is listed as a “Species of Concern” under the Endangered Species Act and is not given formal protection; they are a distinct group from the “desert-nesting sub-population” of bald eagles that has been relisted as Threatened. There is no appropriate habitat for bald eagle nesting or foraging within the study area; they are not expected to occur here.

Migratory Bird Treaty Act: Three species protected under the MBTA have been observed within three miles of the study area: bald eagle (wintering population), golden eagle, and belted kingfisher. None of these species are anticipated to occur within the study area. One additional species, burrowing owl, has not been reported to the AGFD but likely occurs in the study area.

Wildlife Movement: The study area is located between the eastern and western portions of the Prescott National Forest, which provides habitat that is used by several species of wildlife that require large open spaces, including pronghorn, mule deer, javelina, and mountain lions. The study area is located in an area of open grasslands within Potential Linkage Zone 35, East – West Prescott National Forest, as identified by The Arizona Wildlife Linkage Working Group. Within this zone, functional linkage(s) should be designated and conserved to allow for wildlife movement between the two protected forest areas.

Surface Water: The study area is located within the Upper Verde River subwatershed, which is part of the larger Verde River Watershed. Surface water generally flows south to north and west to east within the study area. Granite Creek, the largest drainage feature in the study area, flows through the northern portion of the study area. There are ten other drainages located throughout the study area. All of the drainages are ephemeral washes; that is, water runs in them only when it rains and they are dry most of the year. The closest perennial waterbodies are Willow Creek Reservoir and Watson Lake, located south of the Prescott Airport, and the Verde River, which becomes perennial as a result of groundwater flow at the confluence with Granite Creek just north of the study area.

Jurisdictional Waters of the United States*:* According to Section 404 of the Clean Water Act, the Army Corps of Engineers (Corps) has the authority to regulate discharges, including construction of bridges, etc., in Waters of the United States (WOUS). The active channel of Granite Creek is likely jurisdictional. Construction within the active channel of Granite Creek would necessitate consultation with the Corps.

Floodplains*:* The majority of the study area is outside the 100-year floodplain (Zone X). There are two areas that fall within the 100-year floodplain: the area along Granite Creek in the north part of the study area and a small area along an unnamed wash just northeast of the Town of Prescott Valley section that is within the study area. Any construction within the 100-year floodplain that could cause an increase in the flood depth must be coordinated with the Yavapai County Floodplain Manager.

Surface Water Quality*:* Surface water quality within the study area meets state standards.

Irrigation District*:* The City of Prescott purchased the Chino Valley Irrigation District's rights to surface water impounded at Watson Lake and Willow Creek Reservoir. The City maintains the lakes for recreational uses and releases approximately 1,500 acre-feet per year for groundwater recharge at their recharge facility.

Groundwater Quality: The Arizona Department of Water Resources has designated Active Management Areas (AMA) for groundwater in three areas of the state where groundwater overdraft is occurring. The AMAs are managed with the long-term goal of achieving safe-yield by 2025. The study area is located within the Prescott AMA; in general, water quality throughout the AMA is excellent.

Wells*:* There are several wells located within the study area; three are located within potential construction areas of the alternative corridor alignments. The three wells identified are municipal water production wells owned by the Prescott Valley Water District.

Hazardous Materials: No hazardous materials sites were identified within the study area.

Prime and Unique Farmland: Along the western bank of Granite Creek there is a strip of land, approximately 500 feet wide, that is considered farmland of unique importance. Within Granite Creek there are also islands of soil types that could be considered prime farmland if irrigated. As there is no irrigation in this area it is not considered prime farmland. All other land within the project area is not considered important farmland.

Visual Resources: The study area is situated in both Lonesome Valley and Little Chino Valley, on undeveloped land primarily used for grazing. The landscape is characterized by low rolling hills and open grasslands. Views of the landscape are generally unobstructed. Existing terrain elevations within the study area range from approximately 4,840 feet to 5,160 feet. The terrain rises gently east to west out of Lonesome Valley to crest the basaltic Black Hill (5,030 feet) before descending to Granite Creek and continuing to traverse Little Chino Valley.

A privately owned portion of the Peavine Trail crosses the east-west portion of the study area. Segments of the Peavine Trail are open to the public in both the Prescott and Chino Valley areas, but there is currently a gap between these two trails segments. Recreational users of the trail would be sensitive to changes in the visual changes in the landscape. Also, residents who live on nearby parcels may be sensitive to visual changes. Homes situated approximately a quarter mile southeast of the Glassford Hill Road TI and approximately one half mile east of the study area could potentially have foreground (0-.25 mile), middle ground (0.25-3 miles) and background views (beyond 3 miles) of the transportation facilities, especially if those facilities are elevated.

Noise: Traffic noise tends to be a dominant noise source in urban as well as rural environments. The proposed project is surrounded by vacant, currently undeveloped land. As such, there are no existing residences or businesses within or near the project area that are close enough to the proposed road to be affected by its noise.

Air: The Clean Air Act and Amendments (CAAA) and NEPA require that air quality impacts be addressed in the preparation of environmental documents. Under the CAAA, areas are classified by levels of ambient air pollution and whether they attain the National Ambient Air Quality Standards (NAAQS) or are in non-attainment of the standards. There are NAAQS for six pollutants, referred to as “criteria pollutants” and include carbon monoxide, nitrogen dioxide, ozone, particulate matter, sulfur dioxide, and lead. The proposed project is in an area that is in attainment for all criteria pollutants.

Public Involvement

Many agency and private stakeholders were involved with the alternatives development and evaluation of the Great Western including the following:

- Yavapai County
- Arizona Department of Transportation (ADOT)
- Federal Highway Administration (FHWA)
- Town of Prescott Valley
- Town of Chino Valley
- City of Prescott
- Central Yavapai Metropolitan Planning Organization (CYMPO)
- Granite Dells Ranch Holdings, LLC
- Arizona State Land Department (ASLD)
- Deep Well Ranch
- Cortez Enterprises
- Town of Dewey-Humboldt
- Granite Dells Estates Properties, Inc
- US Fish & Wildlife Services (USFWS)
- Arizona Game & Fish Department (AGFD)
- The Nature Conservancy

Independent one-on-one scoping meetings were held with each stakeholder to gain an understanding of the problems, issues, opportunities and community suggestions regarding the ultimate roadway classification, alignment, and connections. The information gathered was also incorporated into the evaluation framework that was utilized to assess alternative alignment concepts.

An initial agency and stakeholder scoping meeting was held on February 4, 2009 to allow all stakeholders to present their issues, concerns, and needs regarding the study area and verify the project scope of work and study limits. At this scoping meeting, it was decided that the Technical Advisory Committee would be formed with all the project stakeholders – including agencies and private landowners - and progress meetings would be held monthly during the alternatives development and evaluation phase. During these monthly meetings, the alternatives evaluation criteria were developed, the evaluation process was presented and agreed upon, and the stakeholders participated in the development of the alignment alternatives, which allowed for the development and evaluation of alternatives in a collaborative effort between the project study team and the project stakeholders. Consensus was obtained among the agencies and stakeholders regarding the initial recommended alternative and implementation phasing prior to presentation to the public.

Two public meetings were conducted to allow public input opportunities regarding the project. The first public meeting was held on February 4, 2009 at the Antelope Hills Golf Course Old Clubhouse in Prescott. The purpose of this meeting was to familiarize the general public with the project and to identify their concerns and needs within the study area in order to gain input for the development of evaluation criteria and alignments. Twenty-nine community members attended this public meeting.

The second public meeting was held on July 22, 2009 at the Antelope Hills Golf Course Old Clubhouse in Prescott. The purpose of this meeting was to present the four alignment alternatives and the comparative evaluation of the alternatives, and solicit public input on the initial recommendations. Twenty-nine community members attended this public meeting.

Alternatives Development and Evaluation

Monthly progress meetings were held with the project stakeholders in order to provide updates on technical data, develop alternative alignments, develop evaluation criteria, and select the preferred alternative for the corridor. The stakeholders, along with the project team, developed four alternative corridor alignments for evaluation that are presented in **Figure E-6**. Two of these corridors begin at SR 89A and Glassford Hill Road and two begin at SR 89A and Great Western Road. All alternatives terminate at SR 89 and the future Road 5 South section line.

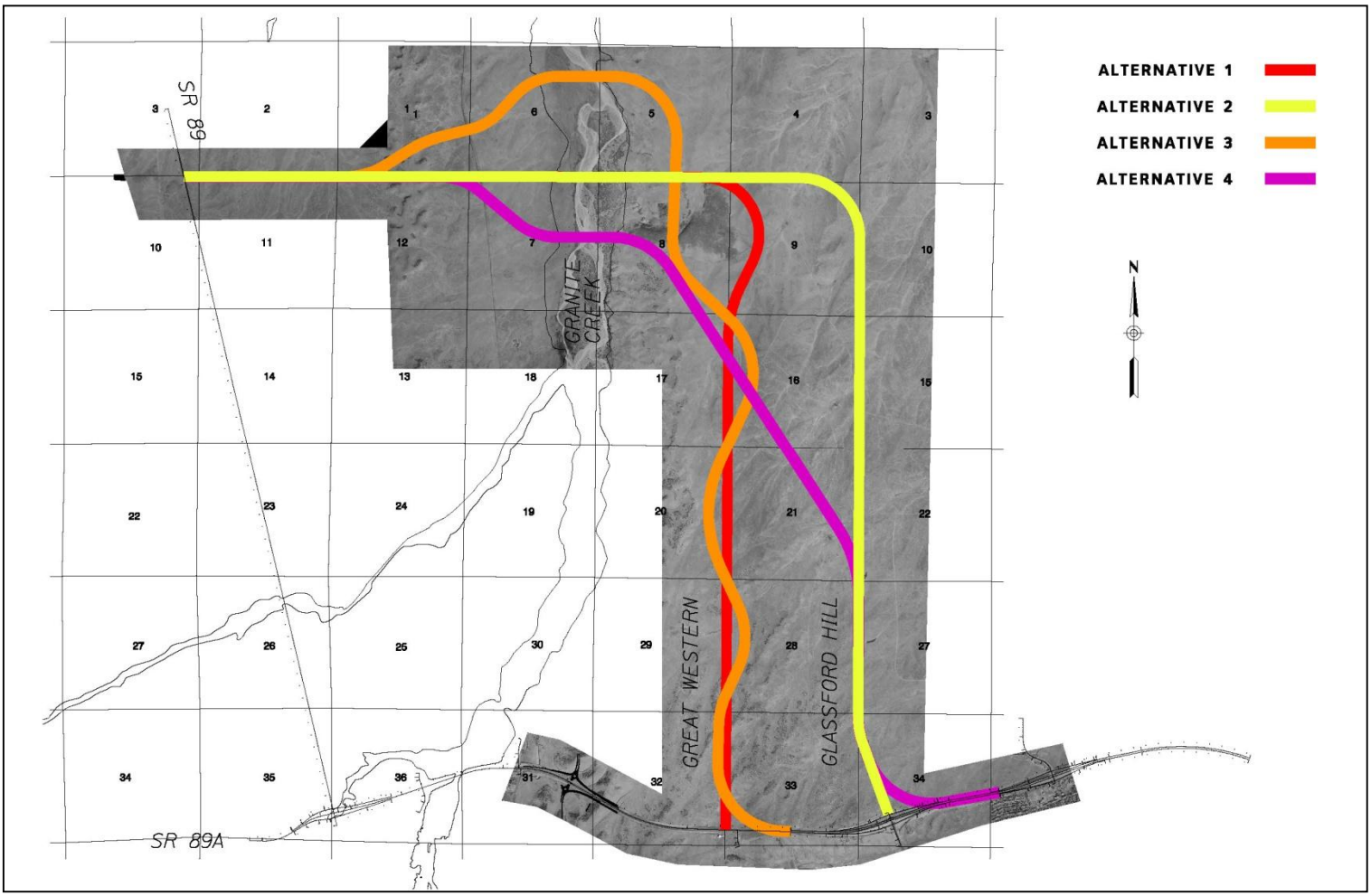


Figure E-6. Feasible Corridor Alternatives

In order to evaluate each corridor alignment alternative, a set of evaluation criteria was developed based on input from the stakeholders and the agency and public scoping meetings held for this project. The evaluation categories included economic development, transportation systems, engineering considerations, environmental considerations, and construction and maintenance costs. Each of these categories was then broken down into specific evaluation criteria. The evaluation criteria represent specific issues that were of concern. In order to evaluate the criteria for the alternatives, it was necessary to also include performance measures. The performance measures are qualitative or quantitative measurements that can be made which apply to each criterion. The results of the evaluation criteria and performance measures are presented in **Table 1**.

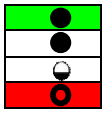
Table 1. Mainline Alternatives Evaluation

Evaluation Category	Evaluation Criteria	Performance Measure	Alt 1	Alt 2	Alt 3	Alt 4
		TOTAL ROADWAY LENGTH	**9.2 mi**	**9.8 mi**	**10.3 mi**	**9.1 mi**
Economic Development	Effects to adjacent parcels	Acres of new R/W required from existing developments or proposed near-term developments	●	●	●	●
		Total acres of new R/W required	●	◒	O	●
		Number of remnant parcels & bisected parcels	●	●	O	◒
	Access to potential future economic centers	Average distance from traffic interchange locations to future employment and retail centers per the general plans	●	O	●	◒
	Gross land disturbance	Acres of land disturbed by the project, either permanently or during construction	◒	O	O	●
Engineering Considerations	Impacts to Prescott Airport	Interference with proposed runway extension or Part 77 surfaces.	●	●	●	●
	Utility coordination	Number & type of existing utility relocations that may be required	◒	O	●	◒
		Compatibility w/proposed future utility corridors	●	◒	●	◒
	Compliance with design guidelines	Ability to meet county and/or state design guidelines	●	●	●	●
	Drainage considerations	Number of large drainage structures required	●	O	●	◒
	Implementation of facility	Ability to construct new facility while minimizing impacts to existing traffic	●	●	●	●
		Ability to divide construction into fundable projects	●	●	●	●
		Ability to implement phased cross-section	●	●	●	●
	Earthwork considerations	Volume of cut/fill and earthwork movement required	●	◒	O	◒
	Bridge structure considerations	Number of bridge structures, excluding local service traffic interchanges	◒	◒	◒	◒
Construct/ Maint Costs	Planning level cost estimates	Total construction cost based on current unit costs (excludes right of way costs)	●	◒	O	◒
		Expected average annual maintenance costs for ultimate facility	◒	◒	◒	◒
Transportation Systems	Compatibility with regional system	Compatibility with existing facility types; maintains similar design speed and criteria; meets driver expectations	●	●	●	●
	Access to local roadway network	Distance from proposed traffic interchange locations to future arterial roadways based on general plans and Chino Valley SATS	●	●	●	●
		Adequate number of traffic interchanges along the corridor to handle anticipated future traffic volumes	●	●	●	●
		Ability to comply with ADOT Statewide Access Management Guidelines	●	●	●	●
	Traffic operations	Operational level of service along the proposed mainline	●	●	●	●
	Accommodates pathways and trails	Ability to preserve existing pathways and trails	N/A	N/A	N/A	N/A
		Ability to accommodate planned pathways and trails	●	●	●	●

Table 1. Mainline Alternatives Evaluation continued

Evaluation Category	Evaluation Criteria	Performance Measure	Alt 1	Alt 2	Alt 3	Alt 4
		TOTAL ROADWAY LENGTH	**9.2 mi**	**9.8 mi**	**10.3 mi**	**9.1 mi**
Environmental Considerations	Effects on water resources	Number of existing well sites that may be disturbed	●	◒	●	◒
		Approximate total area of disturbance to potential waters of the U.S.	◒	◒	●	◒
		Encroachment on Granite Creek / minimize fill or structural elements in the creek	◒	◒	●	◒
	Disturbance of hazardous materials sites	Number of existing & suspected sites that may be disturbed	●	●	●	●
	Effects on biological resources	Area of existing vegetation removed or disturbed	●	◒	○	●
		Potential effects on threatened and endangered species and their habitats	●	●	●	●
		Potential effects on state species and their habitats, including native plants	●	●	●	●
		Number of crossing opportunities for Pronghorn Antelope at large box culverts or bridge crossing structures	◒	◒	◒	◒
		Potential fragmentation of Pronghorn Antelope habitat	●	○	◒	◒
		Potential effects on priority conservation areas and priority grasslands	●	◒	○	●
	Effects on cultural resources	Number of potential cultural or historic sites that may be disturbed	◒	◒	◒	◒
	Compatibility with land use	Potential conflicts with existing and adopted future land use	●	●	●	●
		Number of potential 4(f) or 6(f) sites that may be disturbed	●	●	●	●
	Effects on farmlands	Acres of existing Prime and Unique farmland that may be converted	●	●	●	●
	Effects on water quality	Total acres of impervious surface leading to storm water runoff	●	◒	○	●
	Effects on air quality	Total number of traffic interchanges and controlled intersections along the corridor	N/A	N/A	N/A	N/A
	Visual compatibility	Consistency with the existing landscape	◒	◒	◒	◒
	Visibility	Visibility to highly sensitive viewers	●	◒	●	◒
	Potential to warrant noise abatement	Number of sensitive receivers within 1,000 feet from the new edge of pavement	●	●	●	●
	Disproportionate effects on protected populations (Title VI/Environmental Justice)	Difference between the percentage of population that is protected (Title VI/Environmental Justice) within the affected census block groups and the percentage of population that is protected within Yavapai County	◒	◒	◒	◒

LEGEND



Most Desirable
Most Desirable (all alternatives scored equally)
Less Desirable
Least Desirable

Preferred Corridor Alignment

Based on the results of the evaluation criteria, consensus from the project stakeholders, and input received from the public at the alternatives presentation public meeting, a preferred corridor alignment was identified for further development. The recommended mainline corridor alignment, referred to as Alternative 1, begins at SR 89A at Great Western Road and follows the section line north, turning west at the Road 5 South section line and terminating at SR 89. This alignment is 9.2 miles in total length and essentially parallels Granite Creek in the north-south direction. The proximity to Granite Creek maintains large open spaces for pronghorn and other wildlife and maximizes the distance of the new roadway facility from the existing residential land uses near Viewpoint Drive. This is one of the shortest alignment alternatives, which results in comparatively less land disturbance, right of way requirements, and construction costs. The preferred corridor alignment is presented in **Figure E-7**.

The Great Western Corridor is proposed to transition to Great Western Road arterial south of SR 89A via ramps and frontage roads. This provides a physical exit and entrance from the high speed facility to the local roadway facility that requires drivers to consciously reduce their driving speed. Year 2030 traffic volumes show approximately 90,000 vpd within the first mile segment, which includes both local and regional traffic volumes. The frontage roads will extend approximately two miles north of SR 89A and will separate local traffic from regional traffic to provide the needed capacity for regional traffic on the mainline system.

The projected year 2030 traffic volumes from the City of Prescott Airport Area Transportation Plan (AATP) show roughly 130,000 vpd on SR 89A east of Great Western. This will require a minimum of four through lanes in each direction on SR 89A mainline. The AATP model shows roughly 105,000 vpd on Great Western west of SR 89A which is anticipated to operate at LOS D with the planned three through lanes in each direction.

Full access control is recommended along the Great Western corridor in accordance with ADOT and FHWA access control policy requirements. Limited access control is also recommended along the frontage roads adjacent to the corridor with intersection access to the frontage road limited to ½-mile spacing on the section lines.

Two local traffic interchange (TI) locations have been identified on the north-south segment of the corridor, and one local TI location has been identified on the east-west segment of the corridor. These TI locations were developed in coordination with the project stakeholders, including the local agencies and the major landowners. All local TI's will be the responsibility of local developers to construct as traffic volumes warrant. At the local TI's, the access control on the crossroad shall be per the current ADOT access control policy requirements. A minimum spacing of ¼-mile is recommended from the crossroad and ramp intersection to the next adjacent intersection on the crossroad. On Great Western Road, south of SR 89A, it is recommended no intersections be allowed north of the proposed Dells Ranch Road, which is approximately 1,000 feet south of the local TI ramp intersection.

Several configurations for system TI connections with Great Western at SR 89A, SR 89, and Chino Valley Extension were developed and evaluated. Operational analyses for each alternative were performed based on the travel demand model forecasts presented in the City of Prescott's *Airport Area Transportation Plan* (AATP). However, the AATP travel demand model does not include the proposed Chino Valley Extension. Therefore, the actual travel patterns along the regional roadway system may differ from the results of the model. Preliminary concepts based on the year 2030 AATP model were developed and evaluated, with feasible concepts taken to a 15% design level. No formal recommendations on the system TI configurations are recommended and further study will be required when an updated travel demand model is developed that includes all proposed regional roadways identified in CYMPO's long range transportation plan.

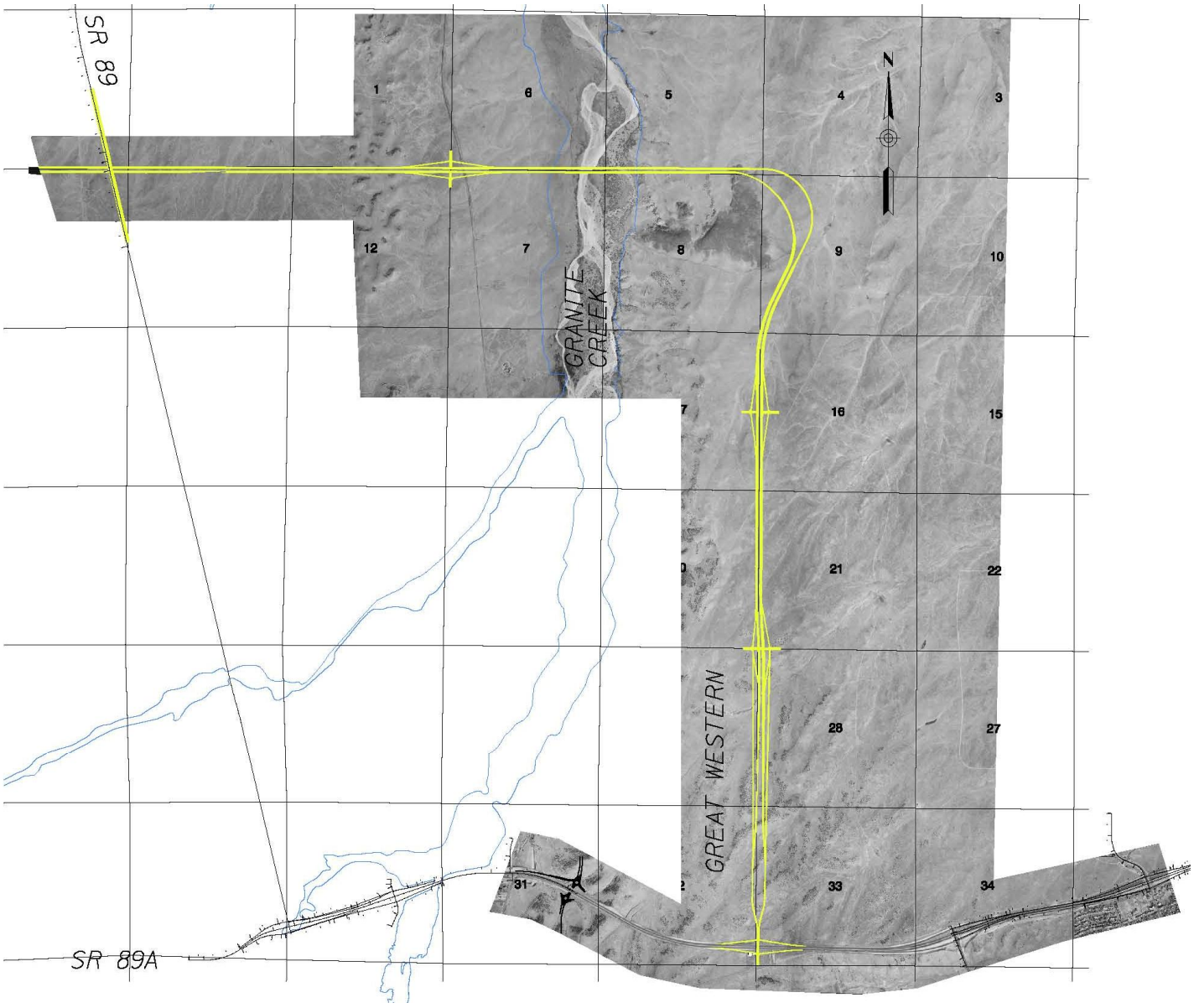


Figure E-7. Great Western Corridor Alignment

Recommended Typical Section

The 2030 traffic projections indicate that the average daily traffic (ADT) volumes on Great Western will range from roughly 60,000 vpd to 90,000 vpd. These volumes indicate that a minimum a 4-lane freeway facility (high capacity/access controlled) is warranted. In order to maintain acceptable levels of service in 2030, the facility would require a 6-lane roadway section. In order to plan for additional traffic volumes beyond year 2030, an 8-lane section is recommended. Input from stakeholders and the general public indicated that an open-median cross-section was favorable to maintain a rural visualization and feel throughout the corridor. **Figure E-8** displays the recommended typical cross-section based on projected volumes and stakeholder input. A minimum right-of-way width of 400 feet with a 50-foot wide utility easement adjacent to the roadway right-of-way and access control limits on the south and west sides of the corridor is recommended. It is recommended the cross section be constructed in phases, with the initial phase providing a total of four lanes. The inside shoulder in the initial phase will ultimately serve as future travel lanes, therefore, the pavement section should match the travel lane section. This phasing approach allows a relatively large work zone within the median for the future lane construction. The actual construction phasing should be evaluated in greater detail during final design.

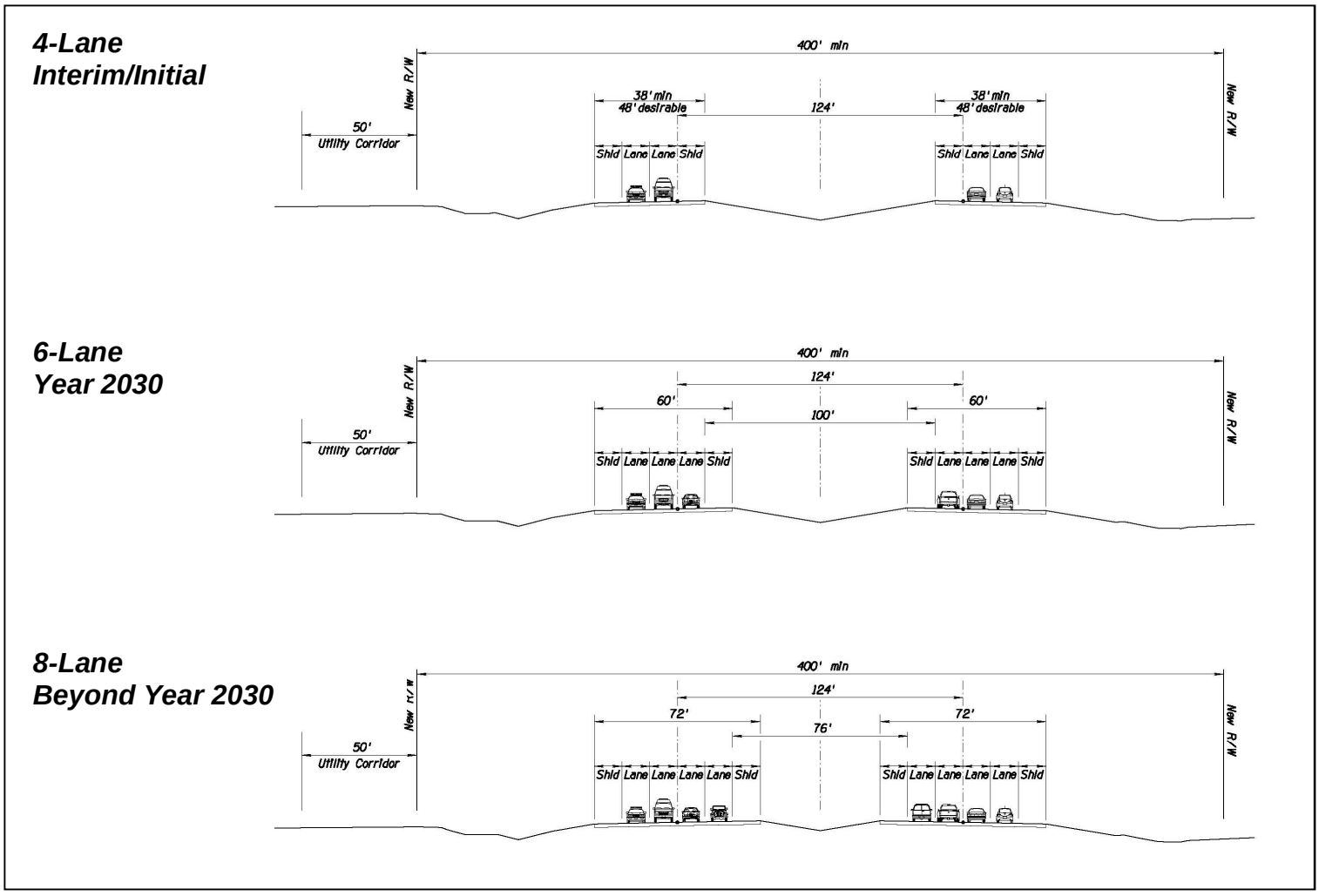


Figure E-8. Great Western Cross Section

Great Western Corridor Implementation

The recommended mainline corridor alignment will be implemented in phases as warranted by future development and traffic demands. The first phase includes construction of the local SR 89A/Great Western Road TI as recommended in the SR 89A DCR. As development occurs north of SR 89A and warrants local access, it is recommended the frontage roads be constructed up to the first local TI section line. The remaining phases include constructing the mainline in segments beginning and ending at adjacent TI's. Future phases will include construction of the system TI ramps at SR 89A and SR 89, for which final configurations will need to be developed with a future study. The system TI at Chino Valley Extension will be constructed with the future Chino Valley Extension mainline project and is not included in the phasing for this project. The recommended implementation phasing is presented below in **Figure E-9**.

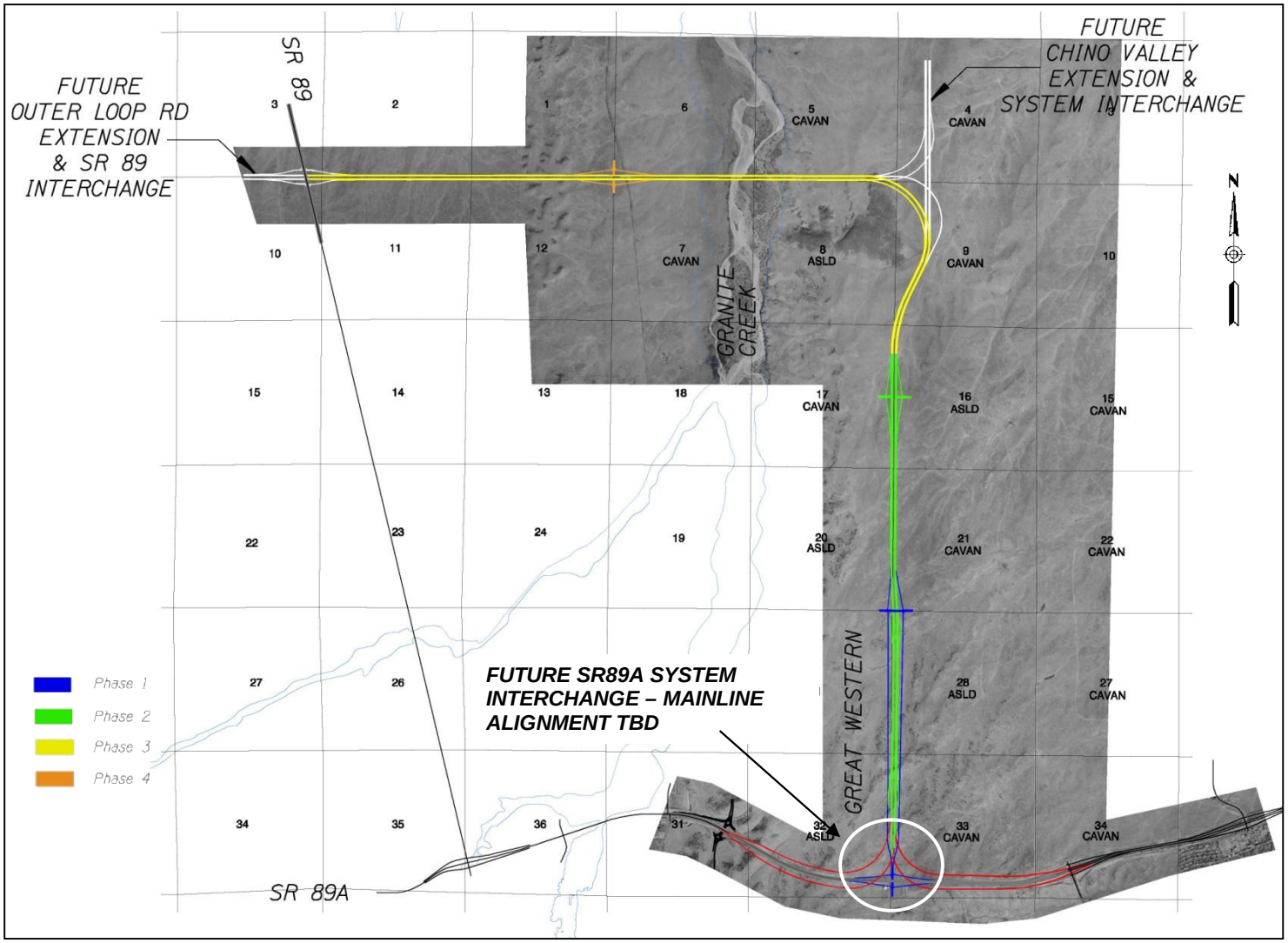


Figure E-9. Implementation Phasing

Estimate of Probable Cost

The initial order of magnitude project costs for the Great Western Corridor, including mainline lanes from west of SR 89 to SR 89A and frontage roads, is $209,940,000 as shown in **Table 2**. The estimated unit costs are based on unit prices obtained from recent ADOT bid results.

Table 2. Estimate of Costs for Great Western Mainline and Frontage Roads

Item	Major Item Description	Unit	Quantity	Unit Price	Total
200	**EARTHWORK**				
	Clearing	Per mile	9.7	$200,000	$1,940,000
	Furnished water supply	Per mile	9.7	$50,000	$485,000
	Earthwork - Excavation	Cu.Yd.	2,754,000	$7	$19,278,000
	Earthwork - Borrow	Cu.Yd.	23,000	$9	$207,000
300	**BASE AND SURFACE TREATMENT**				
	New Asphalt Concrete Pavement-Mainline	Sq.Yd.	741,000	$38	$28,158,000
	New Asphalt Concrete Pavement-Frontage	Sq.Yd.	65,000	$42	$2,730,000
400	**STRUCTURES**				
	Structure	Sq.Ft.	231,000	$110	$25,410,000
500	**DRAINAGE**				
	Drainage (On site)	Per mile	9.7	$700,000	$6,790,000
	Drainage (Off site)	Per mile	9.7	$1,200,000	$11,640,000
600	**TRAFFIC ENGINEERING**				
	Signing & Pavement Marking	Per mile	9.7	$200,000	$1,940,000
700	**ROADSIDE DEVELOPMENT**				
	Landscaping	Per mile	9.7	$400,000	$3,880,000
800	**INCIDENTALS**				
	Mobilization	LSum	1	$1,200,000	$1,200,000
	Roadway appurtenances	Per mile	9.7	$400,000	$3,880,000
	SUBTOTAL - CONSTRUCTION ITEMS				**$107,538,000**
	Maintenance and Protection of Traffic		5%		$5,377,000
	Dust and Water Palliative		2%		$2,151,000
	Quality Control		2%		$2,151,000
	Construction Surveying		4%		$4,302,000
	Erosion Control		1%		$1,076,000
	Mobilization (8% of total construction cost)		8%		$13,622,000
	SUBTOTAL CONSTRUCTION ITEMS:				**$136,217,000**
	Unidentified Items		25%		$34,055,000
	TOTAL CONSTRUCTION COST:				**$170,272,000**
	Construction Engineering		14%		$23,839,000
	Engineering (includes survey and geotechnical)		8%		$13,622,000
	Utility Relocation		1%		$1,703,000
	TOTAL COST:				**$209,436,000**
	Project Maintenance Cost (including inflation)				$504,000
	TOTAL PROJECT COST:				**$209,940,000**